



## Customer Integration in Service Innovation: An Exploratory Study

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### Abstract

Prominent industry projects, as well as an extensive literature suggest the importance of customer integration for companies' innovation success. This appears to be especially true for service firms, which inherently build on customer interaction. Despite this appreciation of the approach, there are comparably few empirical analyses of the positive and negative effects of customer integration. In this exploratory study, we build on established customer role concepts to study the status quo of customer integration in industry, as well as reservations against the roles and negative experiences from customer integration projects. The study reveals a gap between reservations and actual negative experiences in losing know-how, as well as a positive effect of experience in customer integration on perceived benefits for the company.

**Keywords:** customer integration; customer roles; open innovation; service innovation; service management.

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## Introduction

In many services, the integration of the customer is an inherent part of innovation and delivery processes. In recent years, customers have been increasingly involved in these activities, enabled by modern ICT technologies and trends, such as the ubiquitous availability of the Internet. The customer is consequently becoming an active partner in the creation of value (Srivastava et al. 1999; Sawhney 2002; Vargo and Lusch 2007; Xie et al. 2008). Case studies in open innovation, crowdsourcing, and mass customisation show the impact that customers can have on companies (Chesbrough 2003, Piller et al. 2004, Corvello and Iazzolino 2013, Gould 2012). Businesses, such as Dell, have built significant parts of their business model on the involvement of customers, who specify the design and configuration of the products delivered.

These approaches have become known as customer integration and are defined as the active integration of the customer in the provision of goods and services and their upstream and downstream processes (Büttgen 2009). In this role, the customer takes over tasks, which are usually performed by employees of the company. Through his actions, the customer thus influences the performance of the company. Customer integration plays a central role in the widely discussed field of open innovation. Customer integration is inherently suitable for services, because many services could not be provided without the customer's contribution and active participation in the first place (Chervonnaya 2003) – this presents a huge potential that service firms can tap into. The overall economic importance of customer integration is further increased by more and more traditionally manufacturing and goods oriented companies developing their business models and value propositions to include services (Vargo and Lusch 2004; Dohmen et al. 2012; Stauss 2008).

Customer integration approaches comprise one or more typical functions of the customer. These are known as customer roles. However, there is still a lack of a critical assessment of the use of individual customer roles by industry. It is well-recognised that customer integration has positive effects on companies (Büttgen 2009; Temel et al. 2013). Other authors also report negative effects (Enkel et al. 2005). Even though in recent years many customer integration approaches have been implemented, such as Lego Digital Designer and miadidias, customer integration is not systematically used by many companies. The goal of this paper is to identify the status quo of the use of customer integration, the main reasons for employing customer integration, and the main reasons not to do so. Furthermore, it is of interest to find out in which way customers are most often involved – in particular which roles have been adopted by the industry and which appear less practical. We propose the following research questions to guide this study:

- RQ1: Which is the most important customer role for service industries and what are the reasons for this?
- RQ2: Which are the main reasons that hinder customer integration in industry?

In the next section we introduce and discuss the individual customer roles. This is followed by the description of the methodology and the presentation of the results from the empirical study conducted. Thereafter, we present a discussion of the results, incorporating findings from two subsequent expert interviews and an outlook on future work.

## Customer Roles

There are different roles a customer can adopt when he is involved in a company's innovation processes. While typical functions of the customer are widely discussed in the corresponding literature (Büttgen 2009; Schneider and Bowen 1995; Lengnick-Hall 1996; Bettencourt 1997; Prahalad and Ramaswamy 2000; Wind and Rangaswamy 2001; Chervonnaya 2003; Graf 2007), there is still no single agreed upon definition of these roles (Büttgen 2009). For the purpose of this paper, we rely on the very extensive description in Büttgen (2009), who defined seven customer roles. Of these seven roles, we briefly introduce the five roles revealed by our pre-study to be the most relevant for industry.

- **Co-Designer:** The customer helps as an 'organisational consultant' during decision-making and design processes (Schneider and Bowen 1995; Büttgen 2009). In this role, customers contribute to the creation of new services or products, and the company gets an early insight into their opinions and preferences.
- **Service-Specifier:** The customer defines the details of the service before the service delivery (Büttgen 2009). The customer not only specifies the service, he triggers the actual service delivery through his actions (Büttgen 2009; Lengnick-Hall 1996).
- **Co-Marketer:** The customer supports the marketing of a product or service, particularly through word-of-mouth recommendations (Büttgen 2009). The commercial effect of this can be positive or negative, depending on the customer's experience and satisfaction (Swan and Oliver 1989).
- **Quality-Controller:** The customer assists in assuring the quality of production and delivery. For instance, this can be achieved through timely feedback for further developments or through involvement in testing phases (Büttgen 2009; Zeithaml and Bitner 2003).
- **Co-Producer:** The customer provides input in the form of production factors, such as work, know-how, information, money, etc. (Büttgen 2009). The customer acts in a way comparable to a part-time employee of the company during his involvement in the processes (Schneider and Bowen 1995).

## Effects of Customer Integration

When deciding whether to use customer integration and how to implement the approach, management has to consider the potential effects of the individual customer roles on the company's processes. This includes the consideration of both positive and negative consequences of customer integration (Büttgen 2009).

The positive effects of customer integration mainly impact the customer relationship and the efficiency and effectiveness of the business processes. Literature highlights three main factors, which are positively affected by the integration of customers: Decreased costs (Büttgen 2009; Lovelock and Young 1979; Boyer et al. 2002; Xue and Harker 2002), increased customer satisfaction (Auh et al. 2007), and increased market shares (Herstatt and von Hippel 1992).

While the positive factors are often discussed in the literature, there is less research on potentially negative effects. However, as Enkel et al. (2005) stated, it is necessary for a company to identify the risks, which are introduced by customer integration to manage and minimise them as far as possible. From the available literature, we have identified three main problems that can arise in customer integration: Lack of motivation of the customer (Kurzmann and Reinecke 2009), coordination overhead (Büttgen 2009), and the loss of know-how (Enkel et al. 2005).

Arguably, through a consideration of these advantages and risks of customer integration, a manager is able to make a more informed decision on corresponding projects. Having identified these key effects of customer integration, it becomes possible to identify their respective impact on companies' development projects. This study was carried out in the form of a questionnaire-based survey, the methodology of which is presented below.

## Methodology

The purpose of this research is to identify the status quo of customer integration and corresponding experiences in the industry. Therefore, an exploratory study with a deductive approach was chosen. Through an exhaustive literature review of English and German literature about customer integration, several research questions were identified. The approach was implemented in the form of a questionnaire, which enables to test the theses, and to reach a broad audience (Saunders et al. 2009). This was necessary, since our study required a sample incorporating different industries to build a broad picture of the application of customer integration. The questionnaire consisted mainly of closed-ended questions, the answers were analysed descriptively. The questions were posed in two styles: Multiple-choice questions

with an additional open answer option, and questions using Likert scales. This was complemented with some qualitative questions, implementing so-called mixed method paradigms, which allows to gain deeper insight into some topics, while ensuring general comparability of the results, based on the quantitative data (Tashakkori and Teddlie 1998).

The questionnaire was accessible through a web interface and the respondents were invited via email. They received a hyperlink, which was only usable once per invitation. This approach has the advantage of having good control over participation (Saunders et al. 2009). Furthermore, it is more cost efficient to cover a large sample with this method, compared to other approaches, such as postal questionnaires or telephone interviews. The survey's design was cross-sectional, based on profession, a key determinant for the survey results. People working in the areas of service innovation and service management were selected to participate in the survey, predominantly from the functions marketing, innovation management, and product development. To ensure relevant experience of the respondents and a high quality of the responses, the participants were invited based on their expertise, demonstrated through talks and presentations on the topic, participation in corresponding social media groups, and direct recommendations. The survey was geographically limited to Germany and the adjoining German speaking countries. A total of 469 persons were invited to take part in the survey, of which 53 filled out the questionnaire completely, resulting in a response rate of 10.7 per cent. To eliminate ambiguity about the questions and their context, the questionnaire was pre-tested with both students and with a part of the sample population. Furthermore the introduction of the questionnaire clearly stated that the answers should be given in the context of the respondent's last project involving customer integration. Based on the analysis of the survey results, two follow-up interviews with industry experts were conducted, both service managers in charge. One interview partner works with a utility vehicle manufacturer, the other one is from a controller manufacturing company. The semi-structured interviews were set up to investigate the key findings emerging from the survey in more detail, and to gain a perspective on the companies' future plans for the implementation of customer integration mechanisms. Both interviews were conducted in person and lasted approximately 60 minutes each.

## Results

### The Use of Customer Integration

To answer RQ1, the respondents were asked two questions in the survey. The first question "Which are the three most important roles, which customers take over in your company?" allows an insight into the adoption of the different

roles. The corresponding results are depicted in Figure 1. Generally speaking, all five roles are applied in the industry. The most commonly reported role is the Service-Specifier, which is used by 28 per cent of all respondents. This is not surprising, since the sample consisted of people working in service firms or businesses with a significant service share, and the Service-Specifier is an essential part of most service business models. On the other hand, there are the Co-Producer and the Quality-Controller, which are the least applied roles in the industry, used by only 14 per cent of the respondents. This is surprising, because the Co-Producer is the most prominently discussed role in literature (Büttgen 2009; Lengnick-Hall 1996). Looking closer, industries like the automotive sector, the electrical industry and engineering report little experience with the Co-Producer (these industries represent 24 of the 53 respondents). Our data further shows that industries like consulting or the IT sector report experience with Co-Producers in their projects. Therefore, the relevance of the Co-Producer can be argued to be particularly industry-specific, and is reported as the least important role in the cross-industry view of our survey.

### The Benefits of Customer Integration

The second survey question on RQI was “How would you value the benefit of the specific customer role during the integration of the customer in your company?” This question was asked for each role to allow a direct comparison. A forced-choice scale with a range from “1 – no advantages” to “6 – big advantages” was used, since a pre-study had shown many answers on this topic to fall into the neutral option of a 5-point scale. The results are depicted in Figure 2. Our respondents evaluated the roles of the Service-Specifier and the Quality-Controller as having the greatest benefits for their company, while the Co-Producer was reported to have the smallest benefit. These results match the findings reported above: The roles that are reported to have a smaller benefit appear to be used less as well.

The question that arises is if roles might be falsely judged if one has no previous experience with integrating the customer in this way. In other words, are there differences between the opinions of respondents who already have expe-

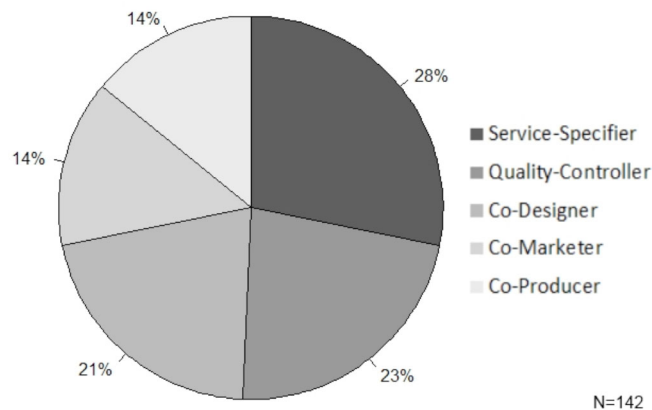


Figure 1: Application of Customer Roles.a

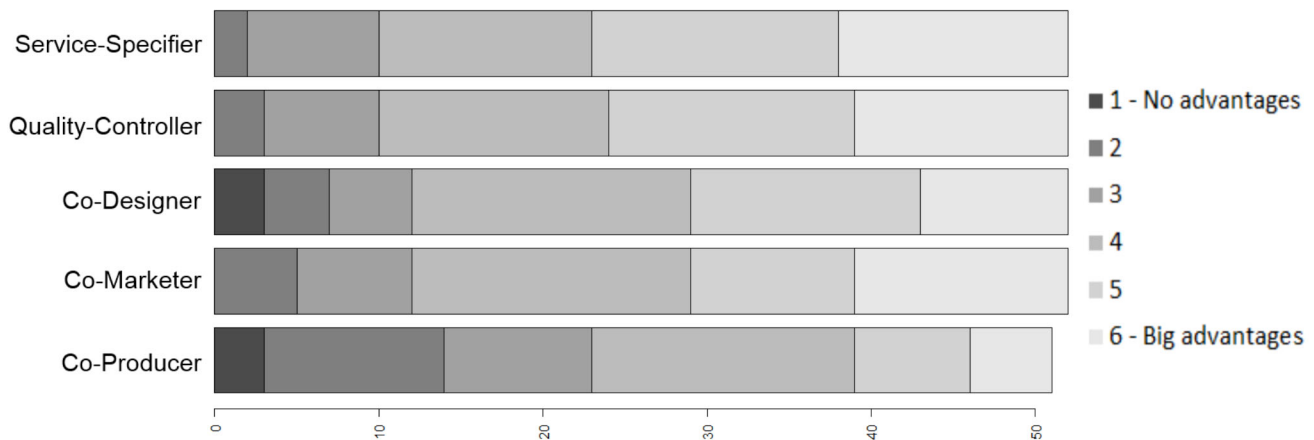


Figure 2: Role-Specific Distribution of Reported Benefit.

periences with a role and those who did not? The results of such a comparison across all roles are shown in Figure 3. If we divide the scale into a negative part (1-3) and a positive part (4-6) regarding the benefits of the customer roles, it becomes clear that differences do exist. In fact, if we view all respondents, 74 per cent of the answers have a positive tendency, while 89 per cent of the respondents who already have experience with customer integration have positive responses. This shows that people value the benefit that customer integration offers higher after having gained their own experiences.

### Advantages and Disadvantages of Customer Integration

To find out the main advantages and disadvantages of customer integration, the respondents were asked to report them from their own project experiences. The available answers for the advantages were: Decreased costs, Increased customer satisfaction, and Increased market shares, in line with the literature presented above (Piller et al. 2004; Sch-

neider et al. 2005; Bitner et al. 1994). To allow a comparison of the main advantages and disadvantages, the corresponding answers for the disadvantages were: Increased costs, Decreased customer satisfaction, and Decreased market shares. The analysis of the answers in Figure 4 shows that in particular the advantage of Increased customer satisfaction was reported by the respondents, which is accordance with previous studies. This is independent of the concrete role the customer takes, except for that of the Co-Marketer. In this case, the main advantage was seen in Increased market shares, which is intuitively explainable.

Taking a closer look at the potential disadvantages of customer integration, it becomes obvious that especially Increased costs are seen as an issue. This is surprising, because one of the advantages frequently discussed in literature is that customer integration offers the ability to save costs (Büttgen 2009; Lovelock and Young 1979; Boyer et al. 2002; Xue and Harker 2002). This implies that if a company decides whether they want to employ customer integration, this decision should not be made solely on a monetary per-

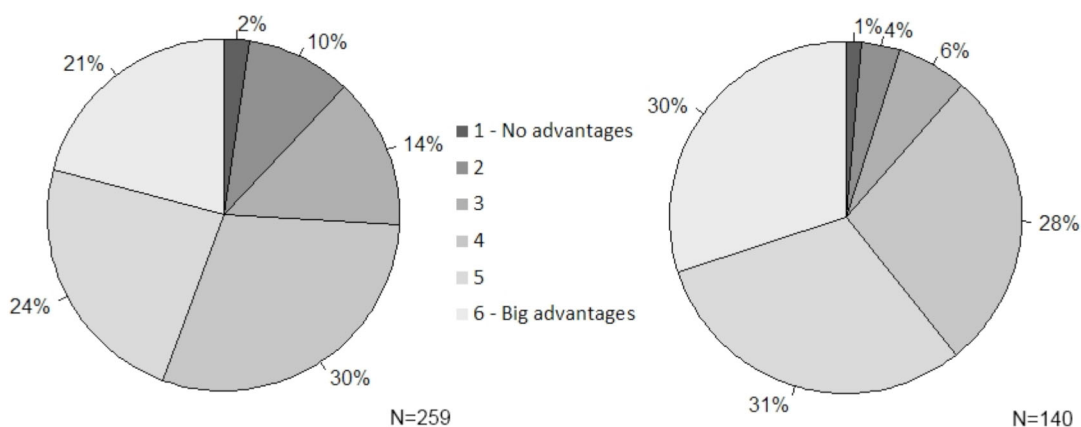


Figure 3: Comparison of all Respondents (left) and Customer-Integration-Experienced Respondents (right).

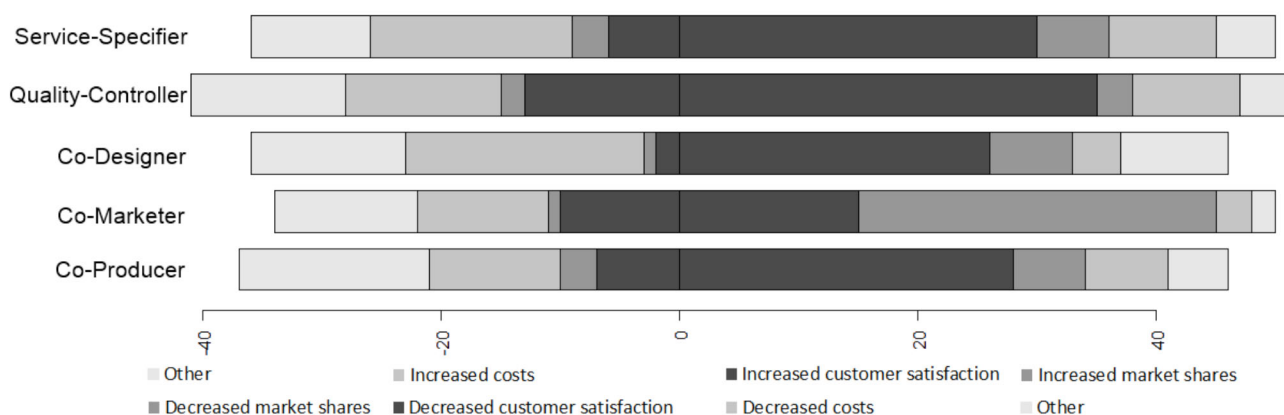


Figure 4: Comparison of Disadvantages (left) and Advantages (right).

spective. Our results indicate that other facts, such as the enhanced customer satisfaction should be included in such a decision, as discussed in more detail below.

### Reservations and Negative Experiences

The respondents were asked for their reservations against the integration of customers, to identify the main reasons why customer integration is not implemented in all of the considered industries today. These questions were presented to the respondents based on their stated experiences with individual customer integration roles. People who had no previous experience with a role were asked for their reservations, while experienced participants were asked for their negative experiences. A comparison of these results is shown in Figure 5.

The analysis of the given answers showed that the main reservation against the integration of customers is a rising effort of coordination. A closer look into the single roles made clear that most of these reservations concern the role of the Co-Producer. This result is in agreement with the other results of the study, in particular with the results regarding the use and benefit of the individual roles.

The most significant difference emerges between the reservations against the loss of know-how by integrating a customer (10 per cent) and the negative experiences concerning this problem (5 per cent). This result reveals that companies' fears of know-how and intellectual property loss might be disproportionate and should be analysed when making decisions on customer integration projects. Opposite results emerge for the issues of missing commitment of the customer and that customer ideas are not accepted or are rejected by the employees. These results show that

the experienced respondents had much more negative experiences with these issues than expected by inexperienced respondents. This highlights that for customer integration a holistic reflection of the tasks performed by the customer and an evaluation of mechanisms used for customer integration is needed. This problem and the combination of available approaches are discussed in more detail below.

### Discussion and Conclusion

The empirical results presented highlight some of the characteristics and subtleties of customer integration through the individual roles. In the following, we want to reflect on these results, based on two interviews conducted with experienced service managers, and show opportunities for further research.

In the results presented above, the customer roles Service-Specifier and Co-Designer are pointed out as two of the most important ones, highlighting the importance of customer integration in the early phases of service and solution development, in accordance with earlier studies, such as Olsen and Welo (2011). Matching findings are manifested in our expert interviews. The two interviewees report to primarily involve customers as Service-Specifiers, Co-Designers, and Co-Producers. The main value derived for their organisations is seen in increased customer satisfaction, and as a result, customer loyalty. While for our first interview partner from the utility vehicle manufacturer, this lesson applies in general since all of their solutions are customer-specific, our expert from the controller manufacturing company paints a more differentiated picture: The meaning and potential of customer integration, particularly in the early phases of the innovation process, clearly correlate with the level of individualisation of the solution. Consequently, his

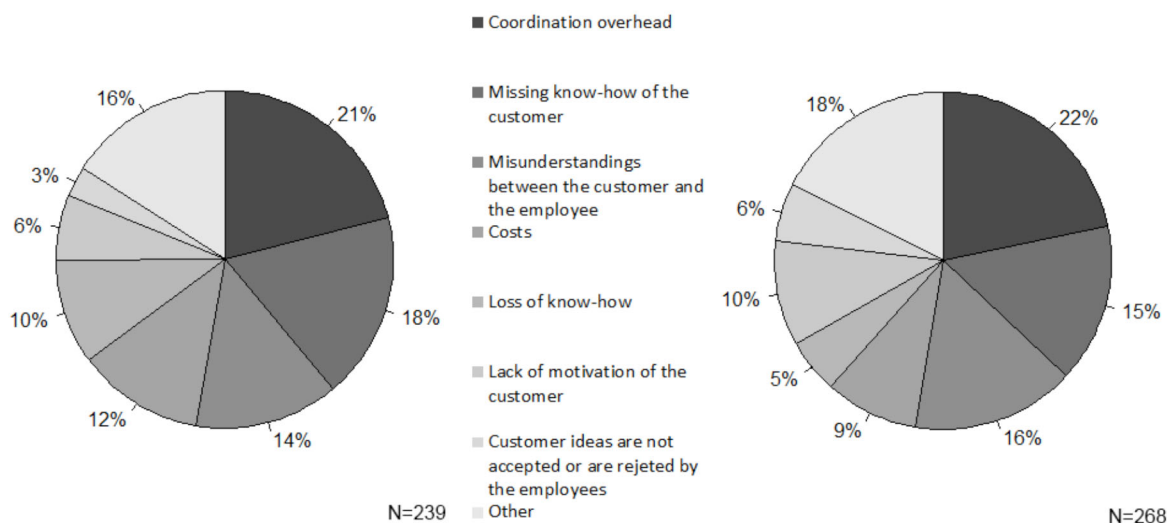


Figure 5: Comparison of Reservations (left) and Negative Experiences (right).

company clearly distinguishes between standard and customised products and solutions, and has established separate procedures for customer integration in the two areas – ranging from a simple help desk to deal with reported issues to personal seminars and trainings, which offer the potential to gather customer input that is very immediate and of high quality. Our contact from the utility vehicle manufacturer reports on a pilot project performed in close interaction with customers that has helped develop and shape new commercially successful offerings. In this project, the firm used pilot customers from their existing customer base and changed their service contracts from traditional ones to performance-based contracts. This instant feedback obtained from the customers has not only helped to develop the contracts further, but to add features that the users had been missing all along. An example of this are predictive services that support the optimal use of the equipment, and ultimately, customers' productivity. The design of this project points out another central issue reported by both of the interviewees: The quality and applicability of customer input is largely dependent on the actual experience of the customers with the services and solutions. In the case of the utility vehicle manufacturer, for instance, our interview partner tells us that "the most innovative suggestions will come from small enterprise entrepreneurs who are also active users", providing much more in-depth and more directly applicable ideas for new developments than a larger, unspecific sample.

What is more, the most important advantage mentioned by the experts is that this specificity and level of detail of the customer input is directly related both to implementation results, and in turn to the satisfaction of the customers with the new developments. As Enkel et al. (2005) suggest this highlights the importance of long-lasting customer relationships for customer integration efforts, reducing potential risks and increasing output quality. As shown in our study, experienced users of customer integration mechanisms report that actual negative experiences are often smaller than anticipated problems and reservations against integrating customers in service development. This could imply that in some cases customer integration projects are rejected through false judgement based on the reservations of the companies' decision makers. Further research should therefore investigate the reported gap between reservations and actual negative experiences. On the one hand this could help companies to evaluate customer integration projects better. On the other hand it could direct more attention to the actual problems, i.e. the negative experiences, so that customer integration projects overall could become more successful. This positive experience effect could further be supported through smart selection of customer groups. Specifically, our interviewee from the utility vehicle manufacturer reports on thoughts to introduce live events that will particularly

attract very experienced and engaged users, help them form a community and drive a very condensed and high-quality stream of innovation ideas back to the company.

In implementing these strategies, however, companies have to be aware of potentially opposing effects. When cooperating intensely with customers to create new solutions, our interviewed experts have observed three customer groups that the organisation has to deal with. First, there are the customers that are happy their suggestion was implemented and for whom the new solution presents an actual improvement. The interviewees hypothesise that this will increase their loyalty and strengthen the relationship with the customer. Second, the company has to consider the group of customers that have not been involved in the solution development, but could potentially also benefit from the results – the perception of the new developments by this group are less clear, because they are not in direct contact with the company during the innovation activities. The third group of customers is composed of those whose suggestions were not integrated into the new developments, or who do not benefit from the new solution, because their needs differ too much from those of the first group. In particular the trade-off in dealing with groups one and three is a decision that firms should take consciously when designing their customer integration programmes and selecting appropriate target customers. A number of approaches have been described in the literature to deal with issues such as this, for example the combination of surveys and market research with early lead-user involvement, in order to avoid the development of solutions that are optimised for small niches of users and have the potential of upsetting a large share of the total customer population (Enkel et al. 2005).

Overall, this study shows which customer roles are adopted most often, as well as their advantages and potential risks for companies. The results provide an overview of the reasons why customer integration is used in some instances, and reasons against its application in others. Furthermore, the study suggests that a company's opinion of the advantages and disadvantages of customer integration is positively affected by an application of customer integration approaches and the collection of own experiences. These results should encourage decision makers and fellow scholars to further implement and evaluate customer integration mechanisms and their impact on companies' innovation performance.

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